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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,008	03/16/2001	Mohammed S. Anwar	95626/09UTL	8563
23873	7590	08/16/2004	EXAMINER	
ROBERT W STROZIER, P.L.L.C			GODDARD, BRIAN D	
PO BOX 429			ART UNIT	
BELLAIRE, TX 77402-0429			PAPER NUMBER	
			2171	
DATE MAILED: 08/16/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/811,008

Applicant(s)

ANWAR, MOHAMMED S.

Examiner

Brian Goddard

Art Unit

2171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2,16,17 and 19-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,16,17 and 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) \*
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/16/2004 ,
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This communication is responsive to the Request for Continued Examination and Amendment B, filed 17 May 2004.
2. Claims 2, 16, 17 and 19-30 are pending in this application. Claims 21, 29 and 30 are independent claims. In Amendment B, claims 1, 3-15 and 18 were cancelled, claims 21-30 were added, and claims 2, 16, 17, 19 and 20 were amended. This action is non-final.

### ***Claim Objections***

3. Claims 21 and 23 are objected to because of the following informalities: The word "extract" should be 'extracting' in the second line of claim 21 in order to recite a proper method step with the grammar of this claim. The word "generate" should be 'generating' in the second line of claim 23 in order to recite a proper method step within the grammar of this claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 2 and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,006,225 to Bowman et al. in view of U.S. Patent No. 5,692,107 to Simoudis et al., and further in view of the article entitled "Discovering Web Access

Patterns and Trends by Applying OLAP and Data Mining Technology on Web Logs” by  
Zaiane et al.

Referring first to claim 21, Bowman teaches a system and method for analyzing a query and generating related results as claimed. See Figures 1 & 5-9 and the corresponding portions of Bowman’s specification for this disclosure. Refer specifically to Figures 7-9 and the corresponding portions of the specification for the disclosure of the claimed invention. In particular, Bowman teaches a method for analyzing a query and generating related results comprising:

extracting [Step 710] keywords [‘term in the query’] from the query;

generating [Steps 720 – 770] at least one term [‘the top X related terms’] related to at least one keyword;

supplying the keywords and terms to a search engine [‘the corresponding modified query is submitted to the search engine’ (Column 14, lines 1-12)];

generating, within the search engine, a request or a plurality of requests for results related to the keywords and terms [See Column 5, lines 61-64 & Column 14, lines 25-45];

generating, within the search engine, at least one result related to the query [‘identify a subset of query result items that include this related term’ (Column 14, lines 25-45)] and at least one question [refined related query 910 (iterative...user can repeat indefinitely) ‘This process could be repeated using additional related terms...’ (Bowman: Column 14, line 32 et seq.)] related to the query derived from the related results [See

Fig. 4], where the question is adapted to enhance information retrieval associated with the query [See Figs. 7-9]; and

displaying [See Fig. 9] the at least one related result and the at least one question.

Bowman does not explicitly disclose that the search engine includes “a data mining routine” to which the keywords and related terms are supplied, or a middleware interface for converting the request(s) and result(s) as claimed. However, Bowman does disclose that “the catalog [database(s)] contains millions of items” and “it is important that the site provide an efficient mechanism for assisting users in locating items.” (Column 4, lines 65-67) Furthermore, Bowman discloses the importance of discovering trends in the data and its usage. See column 7, line 60 – column 8, line 14 for this disclosure. These two points provide suggestion for using a data mining routine for locating trends and gathering other statistics about the data within the catalog database(s). Bowman also suggests that, “The search refinement methods of the invention may be implemented, for example, as part of...a document retrieval system, or any other type of computer system that provides searching capabilities to a community of users.” (Column 4, lines 35-43) This provides direct motivation for combining Bowman’s search refinement system with any type of search system, including data mining routines.

Furthermore, the Bowman reference cites Zaiane on page 2, providing direct suggestion for combining Bowman’s technology with data mining technology. Zaiane

discloses systems and methods similar to those of Bowman, where data mining technology is applied to web-based databases such as those used in Bowman.

Simoudis discloses a data mining system and method for extracting patterns and relations from data stored in multiple databases to generate predictive models (trends). See Figures 1-3 and the corresponding portions of Simoudis' specification for this disclosure. Furthermore, Simoudis' data mining engine accepts query terms (keywords or other terms) as input for the data mining (Steps 210-214); supplies the request(s) to a middleware interface [106] to at least one multi-dimensional database [114]; converts [Step 206 (through API 112)] the request(s) to corresponding database request(s); generates database responses; forwards the database responses to the middleware; converts the database responses to a data mining response; and supplies the data mining response to the data mining routine [See Figs. 1-2 for all of above] as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate Simoudis' data mining engine (of Fig. 1, including the middleware interface) into Bowman's Web Server (131) or Query Server (132) and to supply the keywords and related terms generated by Bowman's search refinement system to the data mining engine in order to generate trends and gather other statistics, from any type of searchable database(s) such as those of Simoudis (114) or Bowman (133), relating to those keywords and related terms. One would have been motivated to do so because of the suggestions provided by Bowman and Zaiane, as described above.

Referring to claim 2, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figure 7 and the corresponding portion of Bowman's specification for this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, "wherein the related keyword generating step comprises polling [Steps 720-730] a database [Query Correlation Table 137] for terms related to at least one keyword" as claimed.

Referring to claim 22, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figures 8 & 9 and the corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, further comprising "selecting, prior to the data mining routine supply step, at least one generated term ['the user clicks on one of these links' (Column 14, line 6)]" as claimed.

Referring to claim 23, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figure 9 and the corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, further comprising after the request generating step, generating, within the data mining routine, an "as is" request corresponding to the query excluding the terms [request to obtain results (920) without using the related terms] as claimed.

Referring to claim 24, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figures 8 & 9 and the corresponding portions of Bowman's specification for this



disclosure. Bowman's (as modified by Simoudis & Zaiane) search/mining refinement is iterative such that the system continues to generate related terms and related questions [queries] as long as the user continues to select the refined queries. Bowman's method teaches repeating the steps of selecting a refinement [910] (question or sub-question) and obtaining the related results [920] until the user is satisfied with the results and chooses to stop the refinement process. In particular, Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, further comprising:

“selecting one of the displayed questions [‘the user clicks on one of these links’ (Column 14, line 6)];

generating...[See discussion of claim 21 above]; ...

generating, within the data mining routine, at least one result [920] related to the question and at least one sub-question [further refined related query 910 (See Bowman Fig. 9 and column 14, line 32 et seq.)] related to the question derived from the related results, where the sub-question is adapted to enhance information retrieval associated with the query; and

displaying...[See discussion of claim 21 above]” as claimed.

Referring to claim 25, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 24 above discloses the invention as claimed. See the discussion regarding claims 21 and 24 above for the details of this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 24, as above, further comprising the steps of:

“selecting one of the sub-questions [‘the user clicks on one of these links’  
(Bowman: Column 14, line 6)]; and

repeating all but the selecting step of claim 24 [query refinement process  
(iterative...user can repeat indefinitely) ‘This process could be repeated using additional  
related terms...’ (Bowman: Column 14, line 32 et seq.)]” as claimed.

Referring to claim 26, the system and method of Bowman in view of Simoudis  
and Zaiane as applied to claim 21 above discloses the invention as claimed. See  
Figure 2 and the corresponding portion of Bowman’s specification, and the discussion  
regarding claim 21 for the details of this disclosure. Bowman’s (as modified by  
Simoudis and Zaiane) query constraints include containment constraints (exact name,  
start of last name, exact title, etc.), grouping constraints (prefixes: title, author, subject,  
etc.), and/or data constraints (particular item genre out of the entire catalog – books in  
the example provided) as claimed.

Referring to claim 27, the system and method of Bowman in view of Simoudis  
and Zaiane as applied to claim 21 above discloses the invention as claimed. See  
Figure 1 and the corresponding portion of Simoudis’ specification for this disclosure.  
Simoudis’ data mining library [104 & 104’], as included in the combined system,  
includes “a cluster DMR” (Clustering 104’) as claimed.

Referring to claim 28, the system and method of Bowman in view of Simoudis  
and Zaiane as applied to claim 21 above discloses the invention as claimed. See  
Figures 1 & 4 and the corresponding portions of Simoudis’ specification for this  
disclosure. Simoudis’ databases (114) can include any type of database having an

associated database management system (DBMS), including relational databases as disclosed in the example of Figure 4. See column 4, lines 26-34; column 5, lines 59-65; and claim 3 for this disclosure.

5. Claims 16-17, 19-20 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowman in view of Simoudis and Zaiane as applied to claim 21 above, and further in view of U.S. Patent No. 6,266,668 to Vanderveldt et al.

Referring first to claim 29, the system and method of Bowman in view of Simoudis and Zaiane as discussed above with regard to claim 21 discloses the invention as claimed. See Figure 1 and the corresponding portion of Bowman's specification, Figure 1 and the corresponding portion of Simoudis' specification, and the combination of these systems as applied in claim 21 above. In particular, the combination of Bowman and Simoudis teaches "a system comprising:

a remote digital processing unit [Bowman: User Computers 110] including an operating system, communication routines, and a user interface having a query construction routine [Bowman: Figure 2] and a results display routine [Bowman: Figure 9];

an application server [Bowman: Web Server 131 and Query Server 132] including an operating system, communication routines, and a query information retrieval content enhancing sub-system [Bowman: Related Term Selection Process 139 & Simoudis: Data Mining Engine of Figure 1 (See claim 1 above)] having a controller [Bowman: 132 & Simoudis: 106], a library of database interfaces [Simoudis: 112], a

library of data mining routines [Simoudis: 104 & 104'], a database (DB) middleware component [Simoudis: 105 & 105' & 106] and a query/results database [Bowman: 137], where the subsystem...[See discussion regarding claim 21 above];

a database server [Simoudis: 106] including an operating system, communication routines, a database [Simoudis: 114] and database services [Simoudis: 112]...[See discussion regarding claim 21 above]; and

a network [Bowman: 120] interconnecting the remote digital processing unit, the application server and the database server [Bowman: See Figure 1] as claimed.

Neither Bowman nor Simoudis explicitly discloses an operating system and communication routines in each of the computer systems, as claimed. Furthermore, neither reference teaches "a user profiler" as claimed.

Vanderveldt discloses a data mining system and method similar to that of Simoudis. See Figures 1-3 and the corresponding portions of Vanderveldt's specification for this disclosure. In particular, Vanderveldt teaches the inclusion of operating systems and communications software (routines) in typical computer systems used to "execute the web pages". See column 9, lines 41-53 for this disclosure. Vanderveldt also discloses a user profiler ['neural network trained upon the user profile' (Column 4, lines 64-65)] for extracting information from user profiles to be used in the data mining.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include operating systems and communications software, such as those of Vanderveldt, into the computer systems of Bowman in view of Simoudis and

Zaiane above. One would have been motivated to do so in order to execute the web-based functions of Bowman and Simoudis' methods, as deemed necessary by Vanderveldt's disclosure.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Vanderveldt's user profiler into the data mining subsystem of Bowman in view of Simoudis and Zaiane. One would have been motivated to do so because this would provide more effective results by including each individual user's search tendencies (represented by the profile) into the data mining routine as effectively as possible.

Referring to claim 16, the system and method of Bowman in view of Simoudis, Zaiane and Vanderveldt as applied to claim 29 above discloses the invention as claimed. See Figure 1 and the corresponding portion of Simoudis' specification for this disclosure. Simoudis' data mining library [104 & 104'], as included in the combined system, includes "a cluster DMR" (Clustering 104') as claimed.

Referring to claim 17, the system and method of Bowman in view of Simoudis, Zaiane and Vanderveldt as applied to claim 29 above discloses the invention as claimed. See Figures 1 & 4 and the corresponding portions of Simoudis' specification for this disclosure. Simoudis' databases (114) can include any type of database having an associated database management system (DBMS), including relational databases as disclosed in the example of Figure 4. See column 4, lines 26-34; column 5, lines 59-65; and claim 3 for this disclosure.

Claim 30 is rejected on the same basis as claim 29, in light of the discussion regarding claims 21 above. See the discussions regarding claims 21 and 29 for the details of this disclosure.

Claims 19 and 20 are rejected on the same basis as claims 16 and 17 respectively, in light of the basis for claim 30 above. See the discussions regarding claims 16-17, 21, 29 and 30 for the details of this disclosure.

### ***Response to Arguments***

6. Applicant's arguments filed 17 May 2004 have been fully considered but they are not persuasive.

Referring to applicant's remarks on pages 9-10 regarding the section 103 rejection of the independent claims: Applicant argues that Bowman has nothing to do with data mining, and seemingly argues that there is therefore no motivation or suggestion to combine. Further, applicant argues that Simoudis does not teach or suggest a discovery process based on questions constructed from the information retrieved from the data mining process.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is the combination of teachings from Bowman and Simoudis (that is the combined teachings presented by the references and what they would suggest to one of

ordinary skill in the art) that render the claimed invention obvious, not just a bodily incorporation of structural elements from one invention to another.

Furthermore, the examiner disagrees with applicant's assertion that Bowman has nothing to do with data mining. Clearly Bowman teaches data mining, even in its most rudimentary form, of the daily query log to generate the query correlation tables. Even if applicant does not believe Bowman's "data analysis" to be data mining, Bowman explicitly states, "The search refinement methods of the invention may be implemented, for example, as part of... a document retrieval system, or any other type of computer system that provides searching capabilities to a community of users." (Column 4, lines 35-43) This provides direct motivation for combining Bowman's search refinement system with any type of search system, including data mining routines. Bowman also cites the Zaiane reference (See above), which provides further motivation to combine Bowman's teachings with a data mining system.

Finally, the detailed steps of usage for the middleware interface added in new claims 21, 29 and 30 are all taught by Simoudis as shown above, and are therefore rendered obvious by the combination. The combination of Bowman and Simoudis, further motivated by Zaiane, therefore teaches each and every element of applicants' claimed invention.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,502,091 to Chundi et al. and Patent Application Publication No. 2002/0091661 to Anick et al. are each considered pertinent to applicant's disclosure and portions of applicant's claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goddard whose telephone number is 703-305-7821. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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bdg  
3 August 2004

  
**FRANTZ COBY**  
**PRIMARY EXAMINER**